

Industrial Division

Transfer Degree

Career Programs

Construction Technology

- Building Trades/Carpentry

Precision Production Technology

- General Machinist Diploma
- Tool and Die Technology Degree
- Welding Diploma

Industrial Program Clusters

Mechanical Technology

- Automotive Service Diploma
- Automotive Service Technology Degree
- Climate Control Mechanics Diploma
- Climate Control Technology Degree

Engineering Related Technology

- Electromechanical Systems
Technology
- Industrial Technology

INDUSTRIAL TECHNOLOGY

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INDUSTRIAL DIVISION

University of Northern Iowa

NIACC's Industrial Division and the University of Northern Iowa's Department of Industrial Technology have teamed up to provide excellent transfer and articulation agreements for students wishing to pursue a four-year degree. These four-year programs include: Construction Management, Electrical and Information Engineering Technology, Graphic Communications, Technology Management, Technology Education, and Manufacturing Technology.

The transfer options include both the Associate in Arts (A.A.) and Applied Science (A.A.S.) Degrees from NIACC. Differences in liberal arts and technical courses with these degrees will affect the remaining four-year degree requirements at UNI.

The articulation agreement, sometimes referred to as a 2+2 agreement, has been developed for many of the technology-related A.A.S. programs at NIACC. The agreement provides details on transfer of A.A.S. credits into Technology Management as well as other majors in the Department of Industrial Technology at UNI.

For more details on these transfer options, please refer to the College Transfer Programs section of the NIACC catalog or contact our academic advisor.



Industrial Technology Endorsement

Students who show responsible attendance, use proper communication, dress appropriately, and show soft skill proficiency will be awarded an Industrial Certificate to verify to future employers that they not only have the technical skills but personal skills to be successful employees.

Automotive Service Technology



Automotive Service Technology is a 4 1/2 semester Associate in Applied Science (A.A.S.) Degree Program. The program is ASE/NATEF Master Certified. All eight instructional areas meet industry and educational standards as identified by Automotive Service Excellence and evaluated by the National Automotive Technicians Education Foundation:



- Engine Repair
- Automatic Transmission/Transaxle
- Manual Drive Train and Axles
- Suspension and Steering
- Brakes
- Electrical/Electronic Systems
- Heating and Air Conditioning
- Engine Performance

A.A.S. Degree Requirements:

Completion of required curriculum, with a cumulative grade point average of 2.00 (C).

Diploma Option Requirements:

An Automotive Service diploma is granted to a student who has completed the first three terms of the automotive curriculum and SDV-135, Job Seeking Skills. A minimum cumulative grade point average of 2.00 (C) is required. Developmental courses are not used in calculating the cumulative grade point average for graduation.

Entrance Advising:

Due to the highly technical nature of the Automotive programs and NIACC's commitment to giving students the best possible opportunity for success, students will be scheduled for advisement sessions with counselors and program personnel. In these sessions, the student's career plans, previous background, transcriptions, test scores, life experiences, and motivation will aid in designing a positive educational experience.

Career Opportunities

Technicians are employed at automotive dealerships and independent service/repair facilities as general (line) technicians or as specialty technicians.

Required Courses/Suggested Schedule

First Year

First Term (Fall Semester)

AUT-104	Introduction to Automotive Technology	3 s.h.
AUT-115	Automotive Shop Safety	1 s.h.
AUT-303	Automotive Manual Drive Train & Axles	3 s.h.
AUT-612	Automotive Electrical Systems I	3 s.h.
ELT-115	Electronic Concepts	3 s.h.
MAT-770	Applied Math	2 s.h.
MAT-771	Applied Math II	2 s.h.
		17 s.h.

Second Term (Spring Semester)

AUT-404	Automotive Suspension and Steering	4 s.h.
AUT-504	Automotive Brake Systems	4 s.h.
ELT-745	Maintenance Shop Operations	3 s.h.
ENG-701	Communications I	3 s.h.
		14 s.h.

Third Term (Summer)

AUT-703	Automotive Heating & Air Conditioning	3 s.h.
AUT-204	Automotive Automatic Transmissions & Transaxles	4 s.h.
		7 s.h.

Second Year

Fourth Term (Fall Semester)

AUT-164	Automotive Engine Repair	4 s.h.
AUT-840	Automotive Computerized Controls	3 s.h.
AUT-657	Automotive Electrical Systems II	5 s.h.
BUS-161	Human Relations	3 s.h.
		15 s.h.

Fifth Term (Spring Semester)

AUT-832	Automotive Fuel Delivery Systems	3 s.h.
AUT-858	Advanced Automotive Engine Performance	4 s.h.
AUT-865	Automotive Engine Performance Testing	5 s.h.
ENG-702	Communications II	3 s.h.
SDV-135	Job Seeking Skills	1 s.h.
		16 s.h.

Total Program Hours 69 s.h.

Automotive Program Goal

Prepare individuals for employment in the automotive service industry by:

- Maintaining an environment that is conducive to learning.
- Offering curriculum that reflects current industry requirements.
- Delivering classroom instruction that encourages analytical thinking.
- Providing laboratory experience that utilizes technical and problem-solving skills.
- Promoting workmanship that meets or exceeds industry standards.

Building Trades

Building Trades is a diploma program designed for individuals interested in a career in residential, commercial, or industrial building construction. Residential construction involves the building or remodeling of houses, condominiums, or apartment complexes. These structures are primarily wood frame construction. Commercial construction involves the building of single-story office buildings, stores, or restaurants. These structures often use light gauge metal framing in addition to wood construction. Industrial construction includes the building of factories, hospitals, schools, or multistory office buildings. These structures may be constructed of concrete, masonry, structural steel, or a combination of materials.



Building Trades Program students learn and develop skills through a combination of classroom-structured units, manipulative lab projects, and mentored job experiences. Classroom units provide students with necessary information on safety, blueprint reading, and craft work processes. Manipulative projects provide students the opportunity to learn craft skills at their own pace in a mock job site setting. The Building Trades Lab is a state-of-the-art facility where students learn in an individualized, competency-based setting, mastering skills by constructing manipulative projects. Mentored job experiences provide students the opportunity to apply learned skills as well as develop new skills while working under the guiding supervision of skilled contractors on job sites around North Iowa.

Incoming students are eligible to compete for scholarships through the Tom and Linda Schaefer Endowment Fund, which provides twelve \$1,000 scholarships each year for NIACC Building Trades students. Graduating students are eligible to compete for a \$500 scholarship awarded each semester by the Contractors' Advisory Association and the North Iowa Area Builders Exchange. The Contractors' Advisory Association has also created a financial assistance agreement to enable a contractor to repay a portion of a student's educational costs after the student has completed the program requirements. In exchange for a commitment to work for a Contractors' Advisory Association member contractor after graduation, a student may receive full or partial tuition assistance from the contractor. A diploma will be awarded upon successful completion of the prescribed curriculum with a grade point average of 2.00 (C) or better.

Courses are structured so that students enter the Building Trades Program in the Fall semester.

Required Courses/Suggested Schedule

First Year

First Term (Fall Semester)

BCA-100	Computer Literacy.....	1 s.h.
CON-107	Construction Safety.....	2 s.h.
CON-110	Construction Drawing.....	1 s.h.
CON-121	Carpentry Fundamentals I.....	4 s.h.
CON-123	Carpentry Fundamentals II.....	4 s.h.
MAT-770	Applied Math I.....	2 s.h.
MAT-771	Applied Math II.....	2 s.h.
		16 s.h.

Second Term (Spring Semester)

CON-112	Blueprint Reading and Estimating.....	3 s.h.
CON-255	Carpentry I.....	4 s.h.
CON-256	Carpentry II.....	4 s.h.
ENG-701	Communications I.....	3 s.h.
SDV-135	Job Seeking Skills.....	1 s.h.
		15 s.h.

Third Term (Summer)

CON-117	Building Codes and Standards.....	2 s.h.
SDV-210	Cooperative Education Internship.....	5 s.h.
		7 s.h.

Total Program Hours 38 s.h

Other Elective Carpentry Courses:

CAD-216	Architectural CADD.....	2 s.h.
CON-305	Cabinetry and Millwork.....	3 s.h.
CON-315	Guitar Building.....	2 s.h.
CON-949	Special Topics in Carpentry.....	1 to 4 s.h.

Career Opportunities

Completion of this program prepares graduates to enter the construction industry as carpenters, with the basic skills to work in residential, commercial, or industrial construction. You will learn the skills necessary to perform work processes in:

- Concrete Formwork
- Framing
- Exterior Finish
- Interior Finish
- Interior Systems
- Cabinetry and Millwork

For specific information contact the Career and Internship Center or the NIACC Industrial Division.

Climate Control (HVAC) Technology

Climate Control (Residential/Commercial Heating and Air-Conditioning)

Today's Climate Control Technician installs, maintains, analyzes, and modifies heating and air-conditioning systems. The Climate Control curriculum provides opportunities to develop the skills necessary for entry into the HVAC (heating, ventilation, air-conditioning) industry.

The Climate Control curriculum allows the students to choose between completing a program in Climate Control (HVAC) Mechanics, which leads to a diploma with an emphasis in residential heating and air-conditioning or a program in Climate Control (HVAC) Technology, which leads to an Associate in Applied Science degree with an emphasis in commercial heating and air-conditioning. Both programs are designed around a common group of courses. A diploma will be awarded upon successful completion of the prescribed curriculum with a grade point average of 2.00 (C) or better. This recognition is granted to a person who has completed the first two terms of the Climate Control curriculum and SDV-135, Job Seeking Skills.

The Climate Control (HVAC) Mechanics diploma program is designed to provide graduates with the basic knowledge and skills necessary for installing and servicing residential heating and air-conditioning systems. Theory of operation, as well as installation and service techniques, for several types of residential heating and air-conditioning systems is covered.

The Climate Control (HVAC) Technology Program prepares students for entry into the commercial and industrial heating, ventilation, and air-conditioning industry.

The program does this by training the student in the following areas: designing, testing, troubleshooting, and servicing residential, commercial, institutional, and industrial heating, ventilation, and air-conditioning systems.

Entrance Advising

Due to the highly technical nature of this program and NIACC's commitment to giving students the best possible opportunity for success, students will be scheduled for advisement sessions with counselors and program personnel. In these sessions, the student's career plans, previous background, transcripts, test scores, life experiences, and motivation will aid in designing a positive education experience.

Career Opportunities

Completion of the diploma program prepares graduates to enter the Climate Control (HVAC) Technology degree program or to enter the following occupations:

- Residential Heating/Air-Conditioning Service Mechanic
- Heating/Air-Conditioning Installer
- Heating/Air-Conditioning Parts Salesperson

Completion of the degree program prepares graduates to enter the following occupations:

- Commercial Heating/Air-Conditioning Service Technician
- Heating/Air-Conditioning Lab Technician
- Heating/Air-Conditioning Sales Engineer
- Heating/Air-Conditioning Parts Manager
- Manufacturer's Field Service Representative

For specific information contact the Career and Internship Center or the NIACC Industrial Division.



Required Courses/Suggested Schedule

First Year

First Term (Fall Semester)

ELT-115	Electronic Concepts	3 s.h.
ENG-701	Communications I	3 s.h.
HCR-115	Residential Heating Systems	4 s.h.
HCR-155	Troubleshooting Heating Systems	3 s.h.
MAT-770	Applied Math	2 s.h.
MAT-771	Applied Math II	2 s.h.
		17 s.h.

Second Term (Spring Semester)

HCR-205	Air-Conditioning Principles	2 s.h.
HCR-210	Residential Air-Conditioning Systems	4 s.h.
HCR-240	Troubleshooting Air-Conditioning Systems	3 s.h.
PHY-720	Career Physics	4 s.h.
		13 s.h.

Second Year

Third Term (Fall Semester)

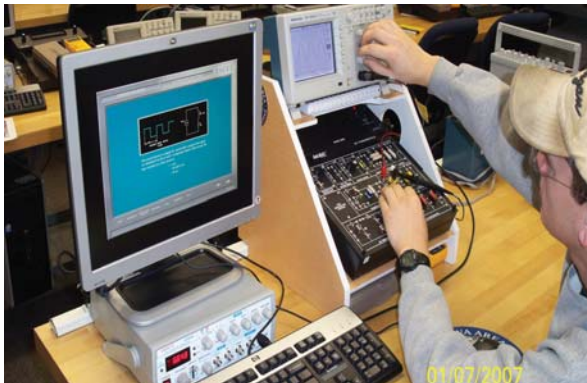
BCA-215	Computer Business Applications	3 s.h.
	OR BCA-101 Introduction to Computers and Information Systems (3 s.h.)	
HCR-150	Commercial Heating Systems	5 s.h.
HCR-510	Sheet Metal Fabrication	2 s.h.
HCR-705	Technical Graphics	2 s.h.
HCR-806	Controls I	3 s.h.
HCR-807	Controls II	3 s.h.
		18 s.h.

Fourth Term (Spring Semester)

BUS-161	Human Relations	3 s.h.
ENG-702	Communications II	3 s.h.
HCR-235	Commercial Air-Conditioning Systems	5 s.h.
HCR-923	Systems Design	3 s.h.
SDV-135	Job Seeking Skills	1 s.h.
SDV-210	Cooperative Education Internship	2 s.h.
		17 s.h.

Total Program Hours 65 s.h.

Electromechanical Systems Technology



Electromechanical Systems Technology is an Associate in Applied Science Degree Program designed to prepare the graduate for immediate employment as electronic, electrical, and mechanical maintenance personnel in manufacturing settings.

Entrance Requirements

Students must either have completed Essentials of Math or higher OR score 16 or higher on ACT math OR have a COMPASS score at the Beginning Algebra level.

Self-Paced Courses

Several courses in the Electromechanical Systems Technology Program are offered in an instructor-supervised/student-paced format. See course descriptions for details concerning specific course status. Much of the instruction in these courses is computer-based using software available only in the Electromechanical Systems Technology Labs on campus. Students enrolled in such courses should expect to spend 25-30 hours in the Electromechanical Systems Technology Lab for each semester hour of the course. For example, ELT-382, Electronic Circuit Analysis is a 3-semester-hour course. The student enrolled in that course should expect to spend 75-90 hours (5-6 hours per week) in the Electromechanical Systems Technology Lab to complete the course. While a suggested schedule appears on this page, the use of instructor-supervised/student-paced course work allows the student much more flexibility in scheduling.

College Transfer Option

Through an articulation agreement with the University of Northern Iowa, graduates of the Electromechanical Systems Technology Program may continue their education by transferring to baccalaureate programs in such industrial technology fields as manufacturing, electromechanical systems, engineering technology, or supervision and management. Help of a NIACC counselor or program instructor is advised.

Career Opportunities

Completion of this program prepares graduates to enter the following occupations:

- Electromechanical Technician
- Industrial Maintenance Technician
- Electronics Technician
- Industrial Process Control Technician
- Instrumentation Technician
- Control Systems Technician
- Computer Automated Process Control Technician

For specific information contact the Career and Internship Center or the NIACC Industrial Division.

Required Courses/Suggested Schedule

First Year

First Term (Fall Semester)

BUS-161	Human Relations	3 s.h.
	OR PSY-111 Introduction to Psychology (3 s.h.)	
ELT-190	Introduction to Tech Computing & CAD	3 s.h.
ELT-382	Electronic Circuit Analysis	3 s.h.
ELT-790	Fluid Power	3 s.h.
ENG-701	Communications I	3 s.h.
	OR ENG-105 Composition I (3 s.h.)	
MAT-770	Applied Math	2 s.h.
MAT-771	Applied Math II	2 s.h.
	OR MAT-121 College Algebra (4 s.h.)	
		19 s.h.

Second Term (Spring Semester)

ELT-210	Motor Control Circuits	3 s.h.
ELT-550	Analog Devices	4 s.h.
ELT-309	Digital Circuits	3 s.h.
ENG-702	Communications II	3 s.h.
	OR ENG-106 Composition II (3 s.h.)	
		13 s.h.

Third Term (Summer)

ELT-895	Electromechanical Internship	2 s.h.
		2 s.h.

Second Year

Fourth Term (Fall Semester)

ELT-124	Advanced PLCs and System Integration	3 s.h.
ELT-133	Electric Motor Drives	2 s.h.
ELT-170	Introduction to PLCs	3 s.h.
ELT-734	Industrial Instrumentation	4 s.h.
PHY-162	College Physics I	4 s.h.
	OR PHY-106 Survey of Physics (4 s.h.)	
	OR CHM-122 Introduction to General Chemistry (4 s.h.)	
		16 s.h.

Fifth Term (Spring Semester)

ELT-710	Computer Automated Manufacturing	3 s.h.
ELT-745	Maintenance Shop Operations	3 s.h.
ELT-750	Facilities Maintenance	3 s.h.
PHY-172	College Physics II	4 s.h.
	OR PHY-106 Survey of Physics (4 s.h.)	
	OR CHM-122 Introduction to General Chemistry (4 s.h.)	
SDV-135	Job Seeking Skills	1 s.h.
		14 s.h.

Total Program Hours 64 s.h.



Through proper course selection, students may tailor their course selection to meet Wind Industry standards to obtain a position as a wind turbine technician. See your counselor for additional information.

General Machinist

General Machinist is a two-semester diploma program designed to provide in-depth study and considerable hands-on skills in the machine processing of a variety of metals. This one-year program provides the foundation for the Associate in Applied Science Program, Tool & Die Technology.

Students become proficient in the operation of manual mills, lathes, grinders, drills, and saws as they complete increasingly complex projects while holding tight tolerances. Various pieces of precision measuring equipment (optical comparator, coordinate measuring machine, etc.) are used to check quality. Additional work in blueprint reading, heat-treating, and computer numerical controlled (CNC) machining is required to complete the General Machinist Program.

Upon satisfactory completion of this program, students are awarded a NIACC diploma. Program graduates have the option to continue into the A.A.S. Tool and Die Technology Program or immediately begin employment in an area of machine shop or manufacturing facility producing a wide variety of machine parts.



Tool and Die Technology

Tool and Die Technology is a five-semester degree program which is a continuation of the General Machinist Diploma Program. The Tool and Die Technology Program builds upon the previous studies with an in-depth study of high-precision industrial dies and die components, progressive dies, and plastics industry molds. A portion of the program is devoted to producing computer-aided drawings (CAD) of molds and dies, and then using computer-aided manufacturing (CAM) software to generate computer numerical control (CNC) machine language. Students operate CNC machine tools to produce many of their second year projects.

Upon satisfactory completion of this program, students are awarded an Associate in Applied Science Degree. Program graduates are prepared to work in the "tool room" of area manufacturers or to work for a specialty tool and die shop producing dies and molds for a large variety of production machines in our area.

Entrance Advising

Due to the highly technical nature of this program and NIACC's commitment to giving students the best possible opportunity for success, students are scheduled for advisement sessions with counselors and/or program personnel. In these sessions, the student's career plans, previous background, transcripts, test scores, life experiences, and motivation aid in designing a positive educational experience.

Required Courses/Suggested Schedule

First Year

First Term (Fall Semester)

BCA-119	Computer Orientation.....	1 s.h.
ENG-701	Communications I.....	3 s.h.
MAT-770	Applied Math.....	2 s.h.
MAT-771	Applied Math II.....	2 s.h.
MFG-120	Machine Trade Print Reading I.....	1 s.h.
MFG-245	Machine Theory and Operations I.....	9 s.h.
		18 s.h.

Second Term (Spring Semester)

MFG-130	Machine Trade Print Reading II.....	1 s.h.
MFG-248	Machine Theory and Operations II.....	7 s.h.
MFG-302	CNC Fundamentals.....	3 s.h.
PHY-720	Career Physics.....	4 s.h.
		15 s.h.

Third Term (Summer)

MFG-108	Computer-Aided Drafting (CAD).....	2 s.h.
MFG-110	3-D Modeling.....	2 s.h.
MFG-380	EDM Fundamentals.....	2 s.h.
MFG-423	Jig and Fixtures.....	5 s.h.
MFG-500	Statistical Process Control (SPC).....	1 s.h.
		12 s.h.

Second Year

Fourth Term (Fall Semester)

BUS-161	Human Relations.....	3 s.h.
MFG-320	Computer-Aided Manufacturing (CAM).....	3 s.h.
MFG-408	Basic Die Making.....	8 s.h.
SDV-135	Job Seeking Skills.....	1 s.h.
WEL-335	Ag and Industry Welding.....	2 s.h.
		17 s.h.

Fifth Term (Spring Semester)

ENG-702	Communications II.....	3 s.h.
MFG-312	Advanced CNC.....	2 s.h.
MFG-459	Injection Mold Making.....	9 s.h.
MFG-460	Plastics Materials.....	1 s.h.
		15 s.h.

Total Program Hours 77 s.h.

Career Opportunities

General Machinist

- Operate and set up CNC mills and lathes
- Maintenance work
- Operate and set up manual equipment

Tool and Die Technology

- Mold builder
- Operate/set up complex CNC equipment
- Tool maker
- Die maker
- CNC programmer
- Quality Control Inspector
- Gage maker
- Instrument maker
- CAD/CAM technician

Industrial Technology



The A.A.S. degree graduate in Industrial Technology provides a broad technical background in a variety of disciplines related to industry. Industrial technologists work with management teams, entry-level supervisors, and technicians in providing manufacturing process and production solutions to ensure the success of our industries. The broad-based programming further provides the student the mobility to move throughout a variety of industrial areas. Graduates of this program have the option of employment upon graduation or articulation of the program to a four-year institution.

Upon satisfactory completion of MAT-770, MFG-195, and eight semester hours of selected industrial electives, students may be awarded a certificate in Industrial Technology. The Industrial Technology certificate provides a basic technical background in a variety of disciplines related to industry. Industrial technologists work with production teams, entry-level foremen, and supervisors in manufacturing facilities. This certificate can apply toward a diploma or degree in Industrial Technology.

Upon completion of 26 semester hours of Industrial Technology credits and 4 semester hours of approved Math during the first year of the program, students may be awarded a NIACC diploma. To be awarded a diploma, students must successfully complete a 30-semester-hour program of study, to include English and Mathematics general education requirements.

Upon completion of the two-year curriculum with a grade point average of 2.00 (C), the student is awarded an Associate in Applied Science in Industrial Technology. Students who know they wish to pursue a four-year degree and want to meet general education requirements of transfer institutions should pursue the A.A. degree. This will necessitate a slightly different curriculum.

The schedule shown on this page is a suggested program of study. Students may choose to change the sequence of courses to suit their needs. Please consult with a NIACC Counselor to develop a program of study that works for you.

Career Opportunities

The intent of this program is to provide a flexible framework targeted primarily to individuals interested in or already employed in the manufacturing field. Many individuals taking this course work are focusing their efforts toward employment in the area of Industrial Maintenance and Repair. Others pursue careers in direct manufacturing.

The program enables the individual to tailor a diploma and/or associate degree program based on his/her skill needs and the needs of the company.

Required Courses/Suggested Schedule

First Year

First Term (Fall Semester)

CON-107	Construction Safety.....	2 s.h.
ENG-102	Composition & Speech I	4 s.h.
	OR ENG-701 (3 s.h.) and ENG-702 (3 s.h.)	
MAT-121	College Algebra.....	4 s.h.
	OR MAT-770 (2 s.h.) and MAT-771 (2 s.h.)	
MFG-108	Computer-Aided Drafting	2 s.h.
WEL-335	Ag and Industry Welding.....	2 s.h.
		14-16 s.h.

Second Term (Spring Semester)

ELT-115	Electronic Concepts	3 s.h.
ELT-790	Fluid Power	3 s.h.
MFG-195	Manufacturing Processes I	2 s.h.
PHY-720	Career Physics	4 s.h.
	OR PHY-162 (4 s.h.)	
		12 s.h.

Second Year

Third Term (Fall Semester)

Industrial Technology Electives**	9 s.h.
Electives	8 s.h.
	17 s.h.

Fourth Term (Spring Semester)

Industrial Technology Electives**	9 s.h.
Electives	8 s.h.
	17 s.h.
Total Program Hours	60-62 s.h.

** Industrial Technology Electives to be taken from existing programs in NIACC's Industrial Technology Division. Students must meet existing course prerequisites. Students may also elect a specialization by taking all electives from a single program. Specializations include:

- Electromechanical Systems Technology
- Tool & Die Technology
- Climate Control (HVAC) Technology
- Building Trades
- Automotive Technology

Students must have approval of program faculty for specializations.

Welding



Welding is a two-semester diploma program designed for individuals seeking skill development and certification in common welding procedures leading to employment in a variety of industries. The program is recognized as an Institutional Member of the American Welding Society and upon completion of all coursework, AWS Certification can be attained. The program's outlined competencies are achieved through a combination of classroom theory, welding demonstration, and practice. Primary emphasis is placed upon hands-on skill development in a state-of-the-art lab facility. Through completion of the program, students gain competency in arc, gas, and automated welding and cutting processes.

Upon satisfactory completion of the prescribed curriculum with an average grade point of 2.00 (C), the student is awarded a NIACC diploma.

Career Opportunities

Completion of this program prepares graduates to enter the following occupations:

- Production Welder
- Maintenance Welder
- Robot Operator
- Building/Structural Welder
- Ag/Construction Equipment Repair Technician
- Fabricator

Industries that use welding:

- Agriculture
- Manufacturing
- Automotive
- Construction
- Mining
- Utilities

For specific information contact the Career and Internship Center or the NIACC Industrial Division.

Required Courses/Suggested Schedule

First Year

First Term (Fall Semester)

CON-107	Construction Safety.....	2 s.h.
WEL-110	Welding Blueprint Reading.....	2 s.h.
WEL-138	Oxy-acetylene Welding and Cutting.....	2 s.h.
WEL-222	Arc Welding I.....	9 s.h.
MAT-770	Applied Math I.....	2 s.h.
MAT-771	Applied Math II.....	2 s.h.
		19 s.h.

Second Term (Spring Semester)

BCA-119	Computer Orientation.....	1 s.h.
ENG-701	Communications I.....	3 s.h.
SDV-135	Job Seeking Skills.....	1 s.h.
WEL-223	Arc Welding II.....	9 s.h.
WEL-240	Welding Fabrication/Certification.....	3 s.h.
WEL-250	Welding Automation.....	2 s.h.
		19 s.h.

Total Program Hours 38 s.h.

Other Elective Welding Courses:

WEL-108	Oxy-acetylene Welding and Cutting and Shielded Metal Arc Welding.....	2 s.h.
WEL-109	Gas Metal Arc Welding and Gas Tungsten Arc Welding.....	2 s.h.
WEL-335	Ag and Industry Welding.....	2 s.h.